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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,531	02/22/2007	Nobuhiro Ito	14633.0006USWO	1839
52835 7590 03/30/2009 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. P.O. BOX 2902 MINNEAPOLIS, MN 55402-0902				
EXAMINER				
NWAONICHA, CHUKWUMA O				
ART UNIT		PAPER NUMBER		
1621				
MAIL DATE		DELIVERY MODE		
03/30/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/521,531

Applicant(s)

ITO ET AL.

Examiner

CHUKWUMA O. NWAONICHA

Art Unit

1621

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Current Status

1. This action is responsive to Applicants' amendment of 29 December 2008.
2. Receipt and entry of Applicants' amendment is acknowledged.
3. Claims 1-5 and 7-10 are actively pending.
4. The nonstatutory obviousness-type double patenting rejection of claims 1-5 as being unpatentable over claims 1, 2 and 9 of copending Application No. 10/534,344 and claims 1-3, 5-10 and 13 of copending Application No. 10/539,188 for the reasons set forth in the previous Office Action of 07/28/2008 is withdrawn because Applicants filed a Terminal Disclaimer.
5. The rejections of claims 1-5 under 35 U.S.C. 102 for the reasons set forth in the previous Office Action of 07/28/2008 is withdrawn. The Prior art references cited do not disclose all the limitations of the claims invention.
6. The rejection of claims 1-5 under 35 U.S.C. 112 for the reasons set forth in the previous Office Action of 07/28/2008 is maintained.

Applicants' argument and amendments filed 29 December 2008 have been fully considered but they are not persuasive because the specification, while being enabling for specifically "a method for deuteration of aromatic compounds as recited in claim 5" does not reasonably provide enablement for "a method for deuteration of **any** compound having an aromatic ring" as claimed. **The Examiner suggests that Applicants combine claims 1 and 5.**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dinh-Nguyen et al., {GB 1,103,607} or Junk et al. (1), {Preparative supercritical deuterium exchange in arenes and heteroarenes, Tetrahedron letters, 37, 201996, 3445-3448} in view of Junk et al.(2), {US 5,830,763} or Bergman et al., {US 6,794,522}.

Applicants claim a method for deuteration of an aromatic ring; wherein all the variables are as defined in the claims.

Determination of the scope and content of the prior art (M.P.E.P. §2141.01)

Dinh-Nguyen et al teach a process of replacement of light hydrogen by deuterium in hydrogen-containing organic compounds with deuterium oxide in presence of PtO₂, alkaline metal deuterioxide or alkaline earth metal deuterioxide under basic condition.

Junk et al. (1) teach a process of replacement of light hydrogen by deuterium in hydrogen-containing aromatic compounds with deuterium oxide in presence of alkaline metal deuteroxide under basic condition.

Ascertainment of the difference between the prior art and the claims (M.P.E.P., §2141.02)

Dinh-Nguyen et al. and Junk et al.(1) method for deuteration of an aromatic ring differs from the instantly claimed method for deuteration of an aromatic ring in that Dinh-Nguyen et al. and Junk et al.(1) teach a process conducted under basic condition while Applicants claim a process under conducted neutral condition.

However, the secondary prior art reference of Junk et al.(2) teach a method for deuteration of an aromatic compounds conducted under neutral condition. Junk et al.(2) indicated the teachings of Hsiao et al., {Preparation of Fully Deuterated Fatty Acids by Simple Method, American Oil Chemists' Society, Chicago, 1994, 9(11), 913-915}, wherein the reaction is carried out over palladium on charcoal catalyst and deuterium gas. See column 2, lines 13-65, the examples and the claims of Junk et al.(2), and page 913 of Hsiao et al.

On the other hand, Bergman et al. teach a method for deuteration of organic compounds conducted under neutral condition over Rh or Co catalyst at a temperature less than 200°C. See columns 5, 7, the examples and the claims.

Finding of prima facie obviousness--rational and motivation (M.P.E.P., §2142-2143)

The instantly claimed method for deuteration of an aromatic ring would have been suggested to one of ordinary skill in view of the teachings of Dinh-Nguyen et al., Junk et al.(1), Junk et al.(2) and Bergman et al.

One of ordinary skill in the art would have a reasonable expectation of success in practicing a method for deuteration of an aromatic ring by evaluating different reaction techniques as taught and exemplified by the prior art references cited to produce deuterated aromatic compounds as desired. Said person would have been motivated to practice the teaching of the references cited because the references demonstrate that deuterated aromatic compounds are useful in industrial application. The instantly claimed invention would therefore have been obvious to one of ordinary skill in the art.

Moreover, all the claimed elements were known in the prior art references cited and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Chukwuma O. Nwaonicha/
Examiner, Art Unit 1621

(for)

/Sikarl A. Witherspoon/
Primary Examiner, Art Unit 1621

Daniel Sullivan
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